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*Optimal Lift: Testing Sailplane Wing Designs*

Does a sailplane with long thin wings or short wings with a large camber provide more lift? Can I test this building a wind tunnel. I believe that the short wing with a large camber will provide more lift. I also believe that I can build a wind tunnel to test this. I will build my wind tunnel using plywood and 2x4's that will be 4 feet long, with an opening of 3 feet tall by 5 feet wide. I will also build flow constricting plates, air flow conditioner, and test stand. I will test each airfoil at the same airspeed recording the lift using my lift measuring devise. I was able to build a wind tunnel that had flow constricting plates that funneled the airflow to the test stand. I was also able to get the airflow close to laminar by building a airflow conditioner. The short wing with a large camber produced 1/2 an inch of lift. The long wing with a shallow camber produced 2 inches of lift. I concluded that my low speed wind tunnel worked for what I was trying to test. I concluded that my flow conditioner significantly reduced the turbulent air flow. I also concluded that the long wing with a shallow camber provided more lift. I saw this in my sailplane lessons in that the sailplanes that have long wings are designed for low speeds and light payload for light speeds. The Sailplanes that are made to carry 2-3 passengers have short wings and usually a large camber.